

DOI: <https://doi.org/10.38035/dijeфа.v4i4>

Received: 9 June 2023, Revised: 15 October 2023, Publish: 17 October 2023

<https://creativecommons.org/licenses/by/4.0/>

Empirical Analysis of Stock Markets That Are More Prone To Losses: A Standard Coverage Test Approach

Samuel Tabot Enow¹

¹ Research Associate, The IIE Varsity College, Durban, South Africa, enowtabot@gmail.com

Corresponding Author: enowtabot@gmail.com

Abstract: Stock market losses have been a recurring phenomenon in financial markets with far reaching implications for investors as it directly impacts the value of their portfolios and potentially jeopardizing retirement savings leading to a loss of income. Identifying stock markets that may realise less returns on investments has been critical area for portfolio managers and active market participants. Therefore, the aim of this study was to empirically investigate financial markets that are prone to losses in order to safeguard and protect investments. A standard coverage test analysis was applied in five selected markets for a sample period from June 7, 2018 to June 7, 2023. This coverage test was used to identify stock markets that breached their generalised indicators and expected losses. The findings revealed that stock market losses are significantly higher in the CAC 40 and Nikkei 225. This was evident in the significant risk violations from their expected levels. By implication, investors willing to invest in the CAC 40 and Nikkei 225 are advised to use sector diversification strategies, stop-loss orders and long term investment strategy to mitigate some of these losses.

Keyword: Stock Market Losses; Standard Coverage Test, Stock Markets; Diversification; Risk Management.

INTRODUCTION

Identifying and investigating losses in stock markets is a critical area in finance and investment research due to its implications for individual investors, institutional investors and the broader economy. Understanding the extend of these losses and identifying stock markets that are riskier is also an essential area that has not yet gain widespread attention. Stock markets are inherently volatile and subject to fluctuations (Chaudhary, Bakhshi & Gupta, 2020). Prices of stocks can experience rapid and substantial changes due to a multitude of factors including economic indicators, geopolitical events and investor sentiment (Engle & Campos-Martins, 2023). Identifying stock markets that are prone to losses helps to understand not just the fundamental causes of this uncertainty but also the associated decrease in investment value. This process is essential to quantify the magnitude of loss and comprehend possible reasons behind market downturns in order to make informed decisions.

Market conditions such as volatility and fluctuations plays a vital role in stock market losses as well as economic indicators such as GDP growth, inflation rates and interest rates (Baek, Mohanty & Glamboosky, 2020). Adverse market conditions can lead to significant price declines resulting in losses for investors. Investor behavior and psychological biases can also contribute to stock market decline. These anomalies such as herd mentality, overreaction and panic selling can amplify market volatility and lead to irrational investment decisions (Enow, 2022). Political instability, trade disputes or unexpected events disrupt market stability and impacts investor confidence which leads to market downturns as well as external events (Haroon & Rizvi, 2020). Individual investors and institutions face direct financial consequences from these events which further leads stock market losses. These losses erode the value of investment portfolios potentially impacting retirement savings, investment goals and overall wealth accumulation. Institutions such as pension funds and mutual funds can face redemption pressures and financial strain as a result. Significant market downturns can lead to a decline in consumer and business confidence reducing consumption and investment (Ha & So, 2023). Large losses create fear and uncertainty, potentially leading to a loss of trust in the market. Reduced investor confidence may result in a shift away from the equity market affecting market liquidity and capital flows. Considering the abovementioned impact and relevance of stock market losses for individual investors and economy at large, this study seeks to answer the following research questions; Which financial markets are more susceptible to losses? What are the implications of these stock market losses for active market participants?

Examining stock market that a more prone to losses can lead to the development of risk management strategies and investment models that can enhance decision-making processes. Also, investigating losses in stock markets is closely linked to investor protection and market integrity. Stock markets are built on trust and confidence and losses can erode investor trust in the fairness and efficiency of the market. Understanding markets that are more prone to losses can contribute to the formulation of regulations, policies and investor protection measures to safeguard market participants. Historical stock market losses provide valuable lessons for investors and policymakers. Analyzing past market downturns and crashes helps identify patterns and warning signs that preceded such events. By understanding these historical precedents, investors can potentially anticipate and manage future losses more effectively. Policymakers can also draw from these lessons to develop early warning systems, implement regulations and improve market surveillance mechanisms. Hence this study makes a significant contribution to the frontier of the literature of stock market losses.

METHOD

A standard coverage test was used to examine five selected markets namely, the Johannesburg stock exchange (JSE index), the French stock market index (CAC 40 index), Frankfurt stock exchange (DAX index), Japanese stock index (JPX-Nikkei 225) and The Nasdaq index for a five-year period from June 7, 2018 to June 7, 2023. The standard coverage test which uses proportions is often used to analyse autocorrelation and the predictability of stock price movements. Accordingly, this statistical measure estimates the potential losses a stock may incur over a specified time horizon at a certain confidence level. This is achieved by comparing the calculated Value at Risk (VaR) estimates with the observed losses. According to Kupiec (1995), the mathematical expression for the standard coverage test model is highlighted below;

$$\text{Standard Coverage Test} = 2VCV \text{Var} \left(\left(\frac{1 - \check{\alpha}}{1 - \alpha} \right)^{r-t(\alpha)} \left(\frac{\check{\alpha}}{\alpha} \right)^{r(\alpha)} \right) \sim \chi^2(1)$$

Where VCV VaR is the variance covariance value at risk, α the confidence level and r the daily returns. The daily share prices for the five financial markets highlighted above

where used retrieved from yahoo finance where used as the main variables. The next section highlights the findings and discussion of the data analysis.

RESULTS AND DISCUSSION

Results

International stock markets are interconnected and events in one market can have ripple effects on others (Enow, 2023). Several factors contribute to the volatility and risk in international stock markets including economic indicators, political stability, monetary policies and geopolitical events (Aisen & Veiga, 2008). When investing in international stocks, diversification across different countries and industries can help reduce the overall risk of a portfolio (Raffestin, 2014). By spreading investments across various regions and sectors, investors can potentially offset losses in one market with gains in another thereby reducing their exposure to specific country or market risks. Monitoring global economic and political developments, staying informed about international market trends and maintaining a well-diversified portfolio are essential for investors seeking to manage their exposure to in international stock markets. Also, another approach to managing and investigating stock market losses is through fundamental analysis (Samimi & Samimi, 2021). This involves assessing a company's financial health including its revenue, earnings, assets, liabilities and overall business performance. By analyzing these factors, investors can evaluate the intrinsic value of a company's stock and determine if it is overvalued or undervalued. Technical analysis focuses on studying historical price patterns, trading volumes and market trends (Singh & Chakraborty, 2016). It utilizes various tools and indicators to identify patterns that may signal a potential decline or reversal in stock prices (Lee et al. 2022). By examining charts and technical indicators, investors can gain insights into market sentiment and make predictions about future price movements. Investigating stock market losses often requires analyzing broader economic factors that can impact the market as a whole. Macroeconomic indicators such as GDP growth, inflation rates, unemployment data, central bank policies and consumer sentiment can influence investor behavior and stock prices. Understanding these factors is crucial for investigating losses and predicting market movements. Significant news events both domestically and internationally can impact stock prices. Factors such as mergers and acquisitions, regulatory changes, technological advancements and geopolitical tensions can all contribute to market downturns. Investigating losses also involves understanding and managing investment risks. This includes diversifying investment portfolios, setting stop-loss orders and implementing risk management strategies to mitigate potential losses. Risk analysis and portfolio optimization techniques are essential for investors to protect their investments during market downturns (Berouaga, El Msiyah & Madkour, 2023). Investors seek to manage and mitigate the risks associated with stock market investments. Investigating stock market losses aids in developing effective risk management strategies and portfolio optimization techniques.

Stock market that are more susceptible to losses can have broader implications for the stability of the economy and the functioning of financial systems. Large-scale market downturns or crashes can disrupt financial intermediation, impact lending activities and lead to a decline in economic growth. Investigating losses in stock markets provides insights into the vulnerabilities and systemic risks that can arise within financial systems. This understanding aids policymakers and regulators in implementing appropriate measures to safeguard the overall stability of the economy. It is important to note that advancements in technology and the emergence of new financial instruments have introduced novel risks and complexities to stock markets. Investigating possible financial market losses in these evolving market environments is crucial for comprehending the impact of technological disruptions, high-frequency trading, algorithmic trading and other market innovations on stock market dynamics. Therefore, this study helps investors strike a balance between risk

and return, minimizing losses while maximizing portfolio performance. The section below highlights the research methodology.

Discussion

Table 1 below presents the results of the descriptive statistics output for a data analysis.

Table 1: Descriptive statistics

	Mean	Median	Kurtosis	Skewness	Range	Minimum	Maximum
JSE	0.027%	0.076%	11.88	-0.39	23.21%	-12.23%	10.97%
CAC 40	0.035%	0.096%	11.61	-0.74	20.66%	-12.27%	8.39%
DAX	0.027%	0.076%	11.88	-0.39	23.21%	-12.23%	10.97%
Nikkei 225	0.014%	0.090%	184.39	-8.36	42.24%	-34.20%	8.03%
Nasdaq	0.053%	0.107%	6.13	-0.38	21.6%	-12.32%	9.34%

Source: Author

The range of the average returns for the sampled financial markets are within the 20.66% to 42.24% threshold which indicates that there may be no outliers. All the returns were negatively skewed except and by implication from the descriptive statistics, investors can expect frequent small gains and losses in the JSE, CAC 40, DAX, Nikkei 225 and Nasdaq. Hence, investing in these markets may result in stable profits. The findings a for the standard coverage test is highlighted below.

Table 2: Standard coverage Test outputs

JSE			Nikkei 225		
Sample size	1249		Sample size	1249	
Confidence level	5%		Confidence level	0.05	
Return	-0.00012%		Return	0.0007%	
Volatility	1.35%		Volatility	1.56%	
VCV VAR	-2.22%		VCV VAR	-0.02571	
	Number	Proportion		Number	Proportion
Violations	49	3.92%	Violations	31	2.48%
Difference	-1.08%		Difference	-0.0252	
Standard error	0.62%		Standard error	0.00617	
Z-stat	-1.746		Z-stat	-4.083	
P-value	8.08%		P-value	0.004%*	
CAC 40			Nasdaq		
Sample size	1249		Sample size	1249	
Confidence level	5%		Confidence level	0.05	
Return	-0.00014%		Return	-0.00057%	
Volatility	1.31%		Volatility	1.62%	
VCV VAR	-2.16%		VCV VAR	-0.02668	
	Number	Proportion		Number	Proportion
Violations	45	3.60%	Violations	61	0.0488
Difference	-1.40%		Difference	-0.0012	
Standard error	0.62%		Standard error	0.00617	
Z-stat	-2.266		Z-stat	-0.188	
P-value	2.35%*		P-value	85.06%	
DAX					
Sample size	1249				
Confidence level	5%				
Return	-0.00012%				
Volatility	1.35%				
VCV VAR	-2.22%				
	Number	Proportion			
Violations	49	3.92%			
Difference	-1.08%				

Standard error	0.62%
Z-stat	-1.746
P-value	8.08%
Source:	Author

From table 2, the volatility in the sampled financial markets are very similar and ranges between 1.31% to 1.62%. At 5% confidence level, the violations from the expected returns in the sampled financial markets listed in table 2 ranges from 31 in the Nikkei 225 to 61 in the Nasdaq. The JSE and DAX had 49 violations while the CAC 40 had 45 violations. The deviations from their expected levels is statistically significant in the CAC 40 and the Nikkei 225 indicating higher stock market losses and breach indicators than usual. However, no significant violations were observed in the JSE, DAX and Nasdaq. By implications, market participants willing to invest in the CAC 40 and Nikkei 225 should expect the value of their investment portfolios to decline rapidly, resulting in a loss of wealth and potential income. It is also expected that these losses may erode investor's confidence in the CAC 40 and Nikkei 225, hence fire sales of their stocks. Furthermore, arbitrage activities and market anomalies may significantly increase in the CAC 40 and Nikkei 225 causing market imperfections.

CONCLUSION

Losses in stock markets are an inherent part of investing but understanding their implications, and implementing effective risk mitigation strategies can help investors navigate the challenges. Market conditions, investor behaviour and external events all contribute to stock market losses. The aim of this study was to empirically examine stock market losses in five financial markets using the standard coverage test. The findings revealed that stock market losses are significantly higher in the CAC 40 and Nikkei 225. This was evident in the significant violations from their expected levels. To mitigate losses in the CAC 40 and Nikkei 225 in the future, investors should spread their investments across different asset classes, sectors and geographic regions. In so doing, the impact of these losses from individual stock markets will be mildly felt. Stop-loss orders are another useful mechanism that can be utilise to mitigate losses. Stop-loss orders automatically sell a stock if its price falls below a predetermined level reducing potential losses. Finally, taking a long-term perspective and focusing on fundamental analysis can help investors in the CAC 40 and Nikkei 225 navigate stock market losses. By identifying undervalued stocks with strong fundamentals, investors can maintain confidence in their investments even during short-term market volatility.

REFERENSI

- Aisen,A., & Veiga, F.J. (2008). Political instability and inflation volatility. *Public Choice*, 135(3), 207-223.
- Baek, S., Mohanty, S.K., & Glambosky, M. (2020). COVID-19 and stock market volatility: An industry level analysis. *Finance Research Letters*, 37, 1-10.
- Berouaga, Y., El Msiyah, C., & Madkour, J. (2023). Portfolio Optimization Using Minimum Spanning Tree Model in the Moroccan Stock Exchange Market. *International Journal of Financial Studies*, 11(2), 53.
- Chaudhary, R., Bakhshi, P., & Gupta, H. (2020). Volatility in International Stock Markets: An Empirical Study during COVID-19. *Journal of Risk and Financial Management*, 13(9), 208.
- Engle, R.F. & Campos-Martins, S. (2023). What are the events that shake our world? Measuring and hedging global COVOL. *Journal of Financial Economics*, 147, 221-242.

- Enow, S.T. (2022). Overreaction and underreaction during the covid-19 pandemic in the south African stock market and its implications. *Eurasian Journal of Business and Management*, 10(1), 19-26.
- Enow, S. T. (2023). Forecasting volatility in international financial markets. *International Journal of Research in Business and Social Science*, 12(2), 197-203.
- Enow, S.T. (2023). Investigating Causality and Market Contagion During Periods of Financial Distress and Its Implications. *Journal of Accounting, Finance and Auditing studies*, 9(1), 140-153.
- Haron, O., & Rizvi, S.A.R. (2020). COVID-19: media coverage and financial markets behavior—A sectoral inquiry. *J. Behav. Exp. Finance*, 27, 100343.
- Ha, J., & So, I. (2023). Global Confidence, Uncertainty, and Business Cycles. *International Journal of Central Banking*, 19(1), 451-495.
- Kupiec, P. (1995). Techniques for verifying the accuracy of risk measurement models. *Journal of Derivatives*, 3, 73–84.
- Lee, M.C., Chang, J.W., Yeh, S.C., Chia, T.L., Liao, J.S., & Chen, X.M. (2022). Applying attention-based BiLSTM and technical indicators in the design and performance analysis of stock trading strategies. *Neural Comput & Applic*, 34, 13267–13279.
- Raffestin, L. (2014). Diversification and systemic risk. *Journal of Banking & Finance*, 46(1), 1-57.
- Samimi A, & Samimi M. (2021). Investigating the Strategic Concept of Risk Management in the Stock Market and Investing. *JEIR*, 2(1), 1-6.
- Singh, S., & Chakraborty, A. (2016). Stock Price Movement through Technical Analysis: Empirical Evidence from the Information Technology (IT) Sector. *IRA-International Journal of Management & Social Sciences*, 3(1), 141-148.